



gel.com

May 14, 2018

Mr. Scot Fitzgerald CH2MHill Plateau Remediation Company MSIN R3-50 CHPRC PO Box 1600 Richland, Washington 99352

Re: CHPRC SAF S18-004 Work Order: 448316 SDG: GEL448316

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on April 18, 2018. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

Heather Shaffer

Deatter Shaffer

Project Manager

Purchase Order: 300071 - 7H

Chain of Custody: S18-004-089, S18-004-090, S18-004-091, S18-004-093, S18-004-099, S18-004-101, S18-004-102, S18-004-105, S18-004-106, S18-004-131, S18-004-168, S18-004-174, S18-004-176,

S18-004-180, S18-004-184, S18-004-208, S18-004-212, S18-004-226 and S18-004-397

Enclosures



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General Narrative for CH2MHill Plateau Remediation Company CHPRC SAF S18-004 SDG: GEL448316

May 14, 2018

Laboratory Identification:

GEL Laboratories LLC 2040 Savage Road Charleston, South Carolina 29407 (843) 556-8171

Summary

Sample receipt

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on April 18, 2018, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Items of Note All efforts were made by the lab to meet any short hold times. Samples that were analyzed outside of the initial hold time but still within 2X hold time will be noted in the lab case narrative.

Sample Identification

The laboratory received the following samples:

Sample
Description
B3HTC5
B3HTF2
B3HTF8
B3HT38
B3HT51
B3HVC9
B3HVF1
B3HV15
B3HTC7
B3HTC4
B3HTD0
B3HTD6
B3HTD1
B3HTD7
B3HT59
B3HT56
B3HTP1
B3HTP4
B3HVD1
B3HVC8
B3HVF9
B3HVF6

448316023	B3HV20
448316024	B3HV26
448316025	B3HV21
448316026	B3HV27
448316027	B3HTW4
448316028	B3HWN5

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: General Chemistry, Metals and Radiochemistry.

We certify that this package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

Heather Shaffer Project Manager

Neatter Shaffer

Page 5 of 98

Technical Case Narrative CH2MHill Plateau Remediation Company (CPRC) SDG #: GEL448316 Work Order #: 448316

Metals

Determination of Metals by ICP

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks(CCB) bracketing the sample in this SDG did not meet the acceptance criteria. The samples bracketed by this CCB, however, contained sodium at a concentration at least ten times greater than the concentration in the CCB. This indicates that any contribution to the concentration of sodium in the samples from potential laboratory contamination would be minimal. 448316023 (B3HV20), 448316024 (B3HV26), 448316025 (B3HV21) and 448316026 (B3HV27).

Quality Control (QC) Information

Method Blank (MB) Statement

The samples in this SDG contained analytes at concentrations more than ten times the amount present in the method blank, therefore the data was not adversely affected.

Sample	Analyte	Value
1204011923 (MB)	Potassium and Sodium	See applicable report

Matrix Spike (MS/MSD) Recovery Statement

The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike also did not meet the required control limits; thus, confirming matrix interferences and/or sample non-homogeneity.

Sample	Analyte	Value
1204011925 (B3HV20MS)	Sodium	73.8* (75%-125%)

Post Spike (PS) Recovery Statement

The PS did not meet the recommended quality control acceptance criteria for percent recoveries for all applicable analytes and verifies the presence of matrix interferences.

Sample	Analyte	Value
1204023006 (B3HV20PS)	Sodium	57.2* (75%-125%)

Determination of Metals by ICP-MS

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

General Chemistry

Ion Chromatography

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Holding Times

Samples (See Below) were initially analyzed within holding; however, the holding times had expired prior to reanalysis of diluted samples. The data is qualified.

Sample	Analyte	Value
1204011852 (B3HT51DUP)	Chloride and Nitrate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
1204011853 (B3HT51PS)	Chloride and Nitrate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18

Sample Dilutions

The following samples 1204011852 (B3HT51DUP), 1204011853 (B3HT51PS), 448316005 (B3HT51), 448316006 (B3HVC9), 448316007 (B3HVF1) and 448316008 (B3HV15) were diluted because target analyte concentrations exceeded the calibration range.

A14		448	316	
Analyte	005	006	007	008
Chloride	5X	5X	5X	10X
Nitrate	5X	5X	1X	1X
Sulfate	20X	20X	5X	10X

Miscellaneous Information

Manual Integrations

Samples 448316007 (B3HVF1) and 448316008 (B3HV15) were manually integrated to correctly position the

baseline as set in the calibration standards.

Ion Chromatography

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Holding Times

Samples (See Below) were initially analyzed within holding; however, the holding times had expired prior to reanalysis of diluted samples. The data is qualified.

Sample	Analyte	Value
1204011860 (B3HTC5DUP)	Chloride and Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
1204011861 (B3HTC5PS)	Chloride and Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
448316001 (B3HTC5)	Chloride and Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
448316002 (B3HTF2)	Chloride and Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
448316003 (B3HTF8)	Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
448316004 (B3HT38)	Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18

Sample Dilutions

The following samples 1204011860 (B3HTC5DUP), 1204011861 (B3HTC5PS), 448316001 (B3HTC5), 448316002 (B3HTF2), 448316003 (B3HTF8) and 448316004 (B3HT38) were diluted because target analyte concentrations exceeded the calibration range.

Amalasta		448	316	
Analyte	001	002	003	004
Chloride	10X	10X	2X	2X
Nitrate	2X	1X	2X	2X
Sulfate	10X	10X	20X	20X

Miscellaneous Information

Manual Integrations

Samples 1204011860 (B3HTC5DUP), 1204011861 (B3HTC5PS), 448316001 (B3HTC5), 448316002 (B3HTF2), 448316003 (B3HTF8) and 448316004 (B3HT38) were manually integrated to correctly position the baseline as set in the calibration standards.

Alkalinity

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Radiochemistry

I129LL_SEP_LEPS_GS: COMMON (low level)

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

SRISO_SEP_PRECIP_GPC: COMMON

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

TRITIUM_DIST_LSC: COMMON

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments

The matrix spike, 1204015855 (Non SDG 448639029MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Chain of Custody and Supporting Documentation

CH2MI CH2MI	CH2MHill Plateau	•	CHAIN OF CUSTOD	Y/SAMPLE ANALYS	OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# S18-004-168
					2188hh	Page 1 of 1
Collector:	Seff Lucas ICHPRC		Contact/Requester: Karen Waters-Husted	ters-Husted	Telephone No.: 509-376-4650	50
SAF No.:	S18-004		Sampling Origin: Hanford Site	Site	Purchase Order/Charge Code: 300071	300071
Project Title:	SURV, APRIL 2018		Logbook No.: HNF-N-506 - 98/75	8/75	Ice Chest No.: GWS-S83	<u>56</u>
Shipped To (Lat	Shipped To (Lab): GEL Laboratories,	LLC	Method of Shipment Commercial Carrier	ial Carrier	Bill of Lading/Air Bill No.: 7030 (9333750	73019333750
Protocol	CERCLA		Priority: 30 Days		Offsite Property No.:	780
POSSIBLE SAM ** ** Contain not regulated Goods Regulat	POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that not regulated for transportation per 49 CFR / IATA Dangerou Goods Regulations but are not releasable per DOE Order 458.	al at concentr per 49 CFR / I easable per DO	are .s	SPECIAL INSTRUCTIONS N/A		
Sample No. Filter	r * Date Time	No/Type Container	ner	Sample Analysis	Holding Time	ne Preservative
B3HTC5 N	3 () T	1x125-mL G/P	P 9056 ANIONS IC: COMMON	NC	STICH OF	טשיי רייט

Relinquished By:	Self Living All Charles		18020 18020	APR 17 2018 2730 Received By Troy Bacon Tooy L. Face 71		APR 17 2018 0930	:	Matrix *
Print First and Last Name		atı	Date/Time	Print First and Last Name	ature	Date/Time		DS = Drum Solids
Inquished By; Ba	Relinquished Byroy Bacon Loy C. Bacon App 17 2018 1-100	7 APR 17 201	00/11/8	Received By: FEDEX	-		SO = Solid	SC = Solid T = Tissue
Print First and Last Name	it Name / Się	Signature	Date/Time	Print First and Last Name	Signature	Date/Time	SL = Sludge	WI = Wipe
Relinquished By: Fed Ex	ed Ex			Received ByChakeris Tarplin.	15/1/28	Sysyh	≥ 0	L = Liquid V = Vegetation
Print First and Last Name		Signature	Date/Time	Print First and Last Name	Signature	A STATE OF THE STA	A = Air	X = Other
Relinquished By:				Received By:				
Print First and Last Name	entransistation desidente marketakata handanakata - akupuppan	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		
INAL SAMPLE [Disposal Method (e.g., l	Return to custome	r, per lab pro	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process): DISPOSITION	Dispos	Disposed By:		Date/Time:
Drinted On 2/22/2040	C			GOD IN - CODESANS				

CH2MHill Plateau	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	SIS REQUEST S18-004-174
		448316 Page 1 of 1
Collector: Self Luces ACHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: S18-004	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: SURV, APRIL 2018	Logbook No.: HNF-N-506-98/フS	Ice Chest No.: (2 W5-582
Shipped To (Lab): GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 7/7 30 (933 375
Protocol CERCLA	Priority: 30 Days	Offsite Property No.: 9314
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that an not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS concentrations that are VA CFR / IATA Dangerous le per DOE Order 458.1	
Sample No. Filter * Date Time No/T	No/Type Container Sample Analysis	Holding Time Preservative
B3HTF2 N W LL-1-18 OSOP 1x	1x125-mL G/P 9056_ANIONS_IC: COMMON	48 Hours Cool <=6C

Relinquished By:	Add Lines Contract	Malos AP	Settlemen APR 17 2018 0930 Received By:	1	Troy Bacon World Bacon APP 17 71119 0930	7019 0930		Matrix *
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Print First and Last Name	st Name	Signature	Date/Time	Print First	Signature	Date/Time	SL = Sludge W = Water	vvi = vvipe
Relinquished By:	Fed Ex			Received By: Chakeris Tarplin, Change GEL Laboratories	from 190	OH 81/81/h	vv = vvatel O = Oil	V = Vegetation
O Print First and Last Name	st Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time	A = Air	x = Other
Relinquished By:				Received By:				
Print First and Last Name	st Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Meth	od (e.g., Return to	customer, per lab pr	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:			Date/Time:
O. 1.1.1.0	40		,	FSR ID = FSR58104				A-6004-842 (REV 3)

CH2MHill Plateau	CHAIN OF CUSTODY/SAMF	PLE ANALYSIS REQUEST		C.O.C.# S18-004-176
of 9		448316	18316	Page 1 of 1
Collector: Jeff Lucas KHPRC	Contact/Requester: Karen Waters-Husted	ted Telephone No.: 509-376-4650	509-376-4650	
SAF No.: \$18-004	Sampling Origin: Hanford Site	Purchase Order/	Purchase Order/Charge Code: 300071	10071
Project Title: SURV, APRIL 2018	Logbook No.: HNF-N-506-98/75	Ice Chest No.:	Ice Chest No.: らwS-S8み	
Shipped To (Lab) GEL Laboratories, LLC	C Method of Shipment Commercial Carrier		r Bill No.: 770	Bill of Lading/Air Bill No.: 17130 193337
Protocol CERCLA	Priority: 30 Days	Offsite Property No.:	No.:	かって
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that an not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS 1 at concentrations that are 1 string to the string tensor of the strin	TRUCTIONS		
Sample No. Filter * Date Time No.	No/Type Container Sample Analysis	Analysis	Holding Time	Preservative
0980 81-CJ-18 N M H-17-18 08410	1x125-mL G/P 9056_ANIONS_IC: COMMON		48 Hours	Cool <=6C

W	B Soll DS = Drum Solids	SO = Solid T = Tissue	B W = Wotor Wile	> = 0il	P = Air X = Uther		O.	Date/Time:	
5 20 gras 1	Date/Time		Date/Time	0h8 sysy/n	Date/Time		Date/Time		
Bacon App 17	Signature		Signature	Charles.	Signature		Signature	Disposed By:	
CHARGE MACAN APR 17 2018 0930 Received By: Bacon ray C. Bacon APR 17 2018 093	Print First and Last Name	Received By: FEDEX	Print First and Last Name	Received Bynakeris Tarplin,		Received By:	Print First and Last Name	cedure, used in process):	
0800	Date/Time		Date/Time		Date/Time		Date/Time	ır, per lab pro	
The APR 17 2	Signature	Relinquished By Troy Bacon Tray L. Broom APR 17 7818 1400) Signature		Signature		Signature	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process):	
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ge 12 of	CH2MH1 Remedia	CH2MHill Plateau Remediation Company	_	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	SIS REQUEST		C.O.C.# S18-004-180
96	Collector:	Jeff Lucas ICHPRC	ć	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	376-4650	
(0)	SAF No.:	S18-004		Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	le Code: 300	1071
а	Project Title:	SURV, APRIL 2018		Logbook No.: HNF-N-506 - 98/75	Ice Chest No.: 6 WS-589	5-583	
U)	Shipped To (Lab):	Shipped To (Lab) GEL Laboratories,	, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 7730 1963	10: 01	あれる
а.	Protocol	CERCLA		Priority: 30 Days	Offsite Property No.:	らなら	
T * EQ	POSSIBLE SAMPL ** ** Contains not regulated f Goods Regulatic	POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	Krai at concent n per 49 CFR / eleasable per DC	SPECIAL INSTRUCTIONS rations that are N/A IATA Dangerous DE Order 458.1			
Ś	Sample No. Filter	* Date Time	ne No/Type Container	iner Sample Analysis	Hold	Holding Time	Preservative
Н	B3HT38 N	0060 81-C1-H M	00 1x125-mL G/P	/P 9056_ANIONS_IC: COMMON	48	48 Hours	Cool <=6C
					ALALAMAN MARKATAN MAR	Andrew American management of the Party of t	

A-6004-842 (REV 3)			FSR ID = FSR58093		
Date/Time:		Disposed By:	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process):	n to customer, per lab pro	., Retu
	Date/Time	Signature	Print First and Last Name	e Date/Time	Signature
			Received By:		
X = Other	Date/Time A = AIr	Signature	Print First and Last Name	e Date/Time	Signature
V = Vegetation	$u/(s/ls_{qq_0}) = 0$	July: Taly	Received Bythakeris Tarplin GEL Laboratories		
WI = Wipe	Date/Time SL = Sludge	Signature	Print First and Last Name	e Date/Time	Signature
T = Tissue			Received By: CEDEX	Relinquished Byroy Bacon Troy L. Bacen. APR 17 2018 1400	8
S = Soil DS = Drum Solids		nature	Print First and Last Name	Date/Time	Signature
Matrix *			Received By: Noy Bacon Lory C. Bocon	interest Moder APR 17 2018 0930	Jan

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	<u> </u>	C.O.C.# S18-004-184
of 9		9/28hh	Page 1 of 1
Collector: Lary Rosana Collector:	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	
SAF No.: S18-004	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	071
Project Title: SURV, APRIL 2018	Logbook No.: HNF-N-506 97/84	Ice Chest No.: GWS~582	
Shipped To (Lab): GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: MAD 1937375	1433,3750
Protocol CERCLA	Priority: 30 Days	Offsite Property No.:	0210
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that not regulated for transportation per 49 CFR / IATA Dangerou Goods Regulations but are not releasable per DOE Order 458.	s concentrations that are N/A 19 CFR / IATA Dangerous 51e per DOE Order 458.1	St	
Sample No. Filter * Date Time No/T	No/Type Container Sample Analysis	Holding Time	Preservative
XI 2160 61.51-14 N N 13HEB	1x125-mL G/P 9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

	M		Ĕ	SL = Sludge WI	v = vvater L 0 = Oil V	me A = Air X = Other		те	Date/Time:	(6/170/06/06/06/06/06/06/06/06/06/06/06/06/06
	OND 17 7019 CAS	Date/Time		Date/Time	1/8//81/h	Date/Time		Date/Time		
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	Received Bytoy Bacon Trey L. Bacen	Print First and Last Name	APR 17 2018 (U(a) Received BYFEDEX	Print First and Last Name	Received Bulkeris Tarplin. GEL Laboratories		Received By:	Print First and Last Name	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process): DISPOSITION	ESR ID = ESR48107
		ALK I / Bate/Time	APR 17 2018 (19	Date/Time		Date/Time		Date/Time	customer, per lab pro	
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	By: Januar	Print First and Last Name /	By: Troy Becon	Print First and Last Name	Relinquished By: FCC EX	Print First and Last Name	By:	Print First and Last Name	PLE Disposal Met	2/22/2018
	Relinquished By:	Print First	Relinquished	Print First	Relinquished 2	O Print First	Relinquished By:	Print First	FINAL SAMPLE DISPOSITION	Printed On

CH2MHill Plateau		CHAIN OF CUSTODY/SAMPLE ANALYS	IS REQUEST	C.O.C.# S18-004-208
		4118316	718316	Page 1 of 1
Collector: Larry Rosane SCHPRC	Contact	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	0:
SAF No.: S18-004	Sampling Origi	g Origin: Hanford Site	Purchase Order/Charge Code: 300071	300071
Project Title: SURV, APRIL 2018	Logbook No.:	(NO.: HNF-N-506 97/84)	Ice Chest No.: 6 W 5 - 582	2
Shipped To (Lab): GEL Laboratories, LLC		Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 7000 (933 3750	378889 NG
Protocol CERCLA	Priority:	Priority: 30 Days	Offsite Property No.:	9314
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that not regulated for transportation per 49 CFR / IATA Dangerou Goods Regulations but are not releasable per DOE Order 458.	l at concentrations er 49 CFR / IATA Dar asable per DOE Order	SPECIAL INSTRUCTIONS that are N/A agerous r 458.1		
Sample No. Filter * Date Time N	Time No/Type Container	Sample Analysis	Holding Time	e Preservative
ВЗНУСЭ N W 4-17-18 0849	1x125-mL G/P 905	9056_ANIONS_IC: COMMON	48 Hours	Cool <=6C

		<						
Relinquished Bysens	ر ا	aran Kasano	APR 17 7119	1040 Received Bythey Bacon They L. Bacesh		APR 17 2018 1090	Me	Matrix *
Print First and Last Name	ast Name	Signature	Date/Time	Print First and Last Name	nature	Date/Time	100 II 00 II	US = Urum solids
Relinquished By: I	Relinquished By: Kinner Tron C. Paren		APR 17 2018 (400)	APR 17 2018 (442) Received ByFEDEX			SO = Solid	SO = Solid T = Tissue
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Relinquished By:	To we will be a second of the			Received ByChakeris Tarplin CEL Laboratories	Pari This	on8 21/21/h		V = Vegetation
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INAL SAMPLE DISPOSITION	Disposal Metho	od (e.g., Return t	o customer, per lab pro	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	:A:		Date/Time:
Printed On 2/22/2018	2018			FSR ID = FSR58115				A-6004-842 (REV 3)

CH2MHill Plateau	CHAIN OF CUSTODY/SAMPLE ANALY		C.O.C.# S18-004-212
of political company	718316	118316	Page 1 of 1
Collector: Damiel Kluss CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	
SAF No.: S18-004	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	10071
Project Title: SURV, APRIL 2018	Logbook No.: HNF-N-506 -49-30	Ice Chest No.: GWS-5BJ	
Shipped To (Lab) GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 7730 [9333750	019353751
Protocol CERCLA	Priority: 30 Days	Offsite Property No.:	つろう
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	at concentrations that are N/A r 49 CFR / IATA Dangerous sable per DOE Order 458.1		
Sample No. Filter * Date Time No.	No/Type Container Sample Analysis	Holding Time	Preservative
B3HVF1 N W 4-17-04 Age 7	1x125-mL G/P 9056 ANIONS IC: COMMON	48 Hours	Cool <=6C

		,0/	()						
Relinquishedder: D. F.	/ da ?	APR	APR 17 7018	Received By: Roger Friesz Jr. ICHPRC	ZZ	APR 17 2018 /045	Shot BILL	ž	Matrix *
Print First and Last Name (st Name 🧸	Signature	Date/Time	Print First and Last Name	1// 1/	Signature	Date/Time	S II SOII	S = Soll DS = Drum Solids
Relinquished By. Roger Friesz Jr.	oger Friesz Jr. N. CHPRC	Y APR 17 2018 1460	18 1400	Received By: FEDEX	1				T = Tissue
Print First and Last Name	st Name	Signature	Date/Time	Print First and Last Name	A formal ball to the formal ball	Signature	Date/Time	St. = Sludge 1	vvi = vvipe
Relinquished By: Fed EX	Led FX			Received ByChakeris Tarpfin. / GEL Laboratorics	3	1	1/8/8 dus		/ = Vegetation
 Print First and Last Name 	st Name	Signature	Date/Time	Print First and Last Name)	Signature	Date/Time	Y HAIL Y	- ∩ Ciner
GRelinquished By:				Received By:					**************************************
Print First and Last Name	st Name	Signature	Date/Time	Print First and Last Name	S	Signature	Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e	e.g., Return to custome	er, per lab pro	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process): DISPOSITION		Disposed By:			Date/Time:

FSR ID = FSR58096

CH2MHill Plateau	CHAIN OF (F CUSTODY/SAMPLE ANALYSIS REQUEST	S REQUEST	C.O.C.# S18-004-226
			448316	Page 1 of 1
Collector: Daniel Klug CHPRC	Contact/Requester:	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	
SAF No.: S18-004	Sampling Origin:	Hanford Site	Purchase Order/Charge Code: 300071	300071
Project Title: SURV, APRIL 2018	Logbook No.: HNF-N-506 -99-30		Ice Chest No.: 6US -582	7
Shipped To (Lab): GEL Laboratories, LLC		Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 77730 [933375]	201925275
Protocol CERCLA	Priority: 30 Days		Offsite Property No.:	43.4
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	at concentrations that are r 49 CFR / IATA Dangerous sable per DOE Order 458.1	SPECIAL INSTRUCTIONS N/A		
Sample No. Filter * Date Time No	No/Type Container	Sample Analysis	Holding Time	Preservative
B3HV15 N W 4-17-14 NF12	1x125-mL G/P 9056 ANIONS IC: COMMON	IC: COMMON	48 Hours	Cool <=6C

			250/		(
Refinquishe	Relinquished The D. R		APR 17 7018	Received By: Roger Friesz Jr	2 / AP	APR 17 2018 1045		Matrix *
Print Firs	Print First and Last Name	Signature		Print First and Last Name	Signature	Date/Time		DS = Drum Solids
Relinquished	Relinquished By: Roger Friesz 4r.	1 APR 1	APR 17 2018 14100	Received By: FEDEX				SO = Solid T = Tissue
O Print First	Print First and Last Name	Şignature	Date/Time	Print First and Last Name	Signature	Date/Time	SL = Sludge W = Water	VVI = VVIpe
Relinquished	Relinquished By: Fed Ex			Received Behalteris Tarplin GEL Laboratories	JAN TAN	OHG by/syh		V = Vegetation
O Print Firs	Print First and Last Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time	Y	_ otner
Relinquished By:	l By:			Received By:				
Print Firs.	Print First and Last Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		
FINAL SAMPLE DISPOSITION	MPLE Disposal Method	(e.g., Return to cu	ustomer, per lab pro	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process): DISPOSITION	Dispos	Disposed By:		Date/Time:
Printed On	2/22/2018			FSR ID = FSR58120				A-6004-842 (REV 3)

CH2MHill Plateau	CHAIN	IN OF CUSTODY/SAMPLE ANALYSIS REQUEST	IS REQUEST	C.O.C.# S18-004-089
of of the state of			1(E8hh	Page 1 of 1
Collector: %ff Luces fcHPRC	Contact/Rec	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	0
SAF No.: S18-004	Sampling Origi	rigin: Hanford Site	Purchase Order/Charge Code: 300071	300071
Project Title: SURV, APRIL 2018	Logbook No.:	o.: HNF-N-506-98/75	Ice Chest No.: Gsus S	GW5-582
Shipped To (Lab): GEL Laboratories, LLC	SEC Method of Ship	Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 17720 193337	2019/2/2/2
Protocol CERCLA	Priority: 3	30 Days	Offsite Property No.:	20.0
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that not regulated for transportation per 49 CFR / IATA Dangerou Goods Regulations but are not releasable per DOE Order 458.	al at concentrations th per 49 CFR / IATA Dange easable per DOE Order 4	SPECIAL INSTRUCTIONS nat are N/A prous 58.1		
Sample No. Filter * Date Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3HTC7 X W 4-17-18 O804	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B3HTC4 N W 4-17-19 0804	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

Relinquished By:	AMILIANS OF THE CONTROL OF THE CONTR	CHERCA ALLON APR 17 20180930		Received Byrroy Bacon Troy C. Bran		APR 17 2018 0930	W	:
Print First and Last Name	ıst Name	Signature	Date/Time	Print First and Last Name	ignature	Date/Time	S = SOII	DS = Drum Solids
Relinguished By:Troy	Relinquished By: Troy Bacon Tray L. Bacan APR 17 2018 (400)	con APR 172	101181400	Received By: FEDEX	-		≓	urii Liquid ssue
Print First and Last Name	ıst Name 🦯	Signature	Date/Time	Print First and Last Name	Signature	Date/Time	SL = Sludge VVI = Wipe	pe
Relinquished By: Fed EX	100 mx			Received ByChakeris Tarplin O	1/2/- xx	OH8 81/81/h	: < د	= Vegetation
Print First and Last Name	ıst Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time	A = Air X = Other	her
GRelinquished By:				Received By:				
Print First and Last Name	ıst Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e.	g., Return to custom	ier, per lab pro	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process): DISPOSITION	Disposed By:		Date/Time:	ime:
	97			100 E				

2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	H2MHill mediati	CH2MHill Plateau Remediation Company	iu any		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	NALYSIS REQUEST		
						うためかか	76	raye i oi i
Collector:	Jeif Lucas /CHPRC	ic C		Ö	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	509-376-4650	
SAF No.:	S18	S18-004		Š	Sampling Origin: Hanford Site	Purchase Order/	Purchase Order/Charge Code: 300071	10071
Project Title:		SURV, APRIL 2018	2018	Ľ	Logbook No.: HNF-N-506 - 98/75	Ice Chest No.:	Ice Chest No.: Cass-S@2	700
Shipped 1	o (Lab)	Shipped To (Lab): GEL Laboratories, LLC	ries, L		Method of Shipment Commercial Carrier	Bill of Lading/Air	Bill of Lading/Air Bill No.: 7/130 1933 37	0 1933 375
Protocol	CER	CERCLA		ď	Priority: 30 Days	Offsite Property No.:	No.:	マグロ
POSSIBLE ** ** Cc not regu Goods Re	SAMPLEH ntains Rac lated for gulations	POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Mater not regulated for transportation Goods Regulations but are not re	:WARK Materia ation p	POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS Ations that are N/A ATA Dangerous Corder 458.1	IONS		
Sample No. Filter	o. Filter *	Date	Time	No/Type Container	er Sample Analysis	S	Holding Time	Preservative
взнтро	N W	0000 81-01-1	0000	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)		6 Months	HNO3 to pH <2
взнтре	K.	4-17-18 0700	0000	1x500-mL G/P	9 6020_METALS_ICPMS: Chromium (1)		6 Months	HNO3 to pH <2

CH2MHill Plateau CREMEdiation Company	teau		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	ALYSIS REQUEST		C.O.C.# S18-004-091
of 9	4			21E8hh	· •	Page 1 of 1
Collector: Collector: ACHPRC		၁၁	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	376-4650	
SAF No.: S18-004		Sa	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	ye Code: 30	0071
Project Title: SURV, APRIL 2018	RIL 2018	Lo	Logbook No.: HNF-N-506 - 98/つら	Ice Chest No.:	Sus-582	582
Shipped To (Lab) GEL Laboratories, LLC	ratories, Li		Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 7720 1933 375	No.: FIRST	516.88610
Protocol CERCLA		Pr	Priority: 30 Days	Offsite Property No.:		25.00
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SS/REMARK ive Materia portation p ire not rele	.l at concentrat er 49 CFR / IA1 asable per DOE	SPECIAL INSTRUCTIONS Lions that are N/A TA Dangerous Order 458.1	Sz		
Sample No. Filter * Date	Time	No/Type Container	r Sample Analysis	Hold	Holding Time	Preservative
B3HTD1 N W 4.17-	4-17-18 0814	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	9	Months	HNO3 to pH <2
B3HTD7 X W 4-17-	7/80 81-CI-H	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	9	6 Months	HNO3 to pH <2

Relinquished By:	Server A Month	They APR	17 2018 0730	APR 17 2018 0730 Received Broy Bacon Tray C. Bacon		APR 17 2018 0730		Matrix *
Print First and Last Name	st Name	Signature	Date/Time	Print First and Last Name	ignature	Date/Time	S II Soil	DS = Drum Solids
Relinquished By: Troy	WRelinquished By Troy Bacon Troy Bacon APR 17 2018 (400	Sen APR 1	7 2018 (400)	Received By FEDEX			SO = Solid	SC = Sediment DL = Drum Liquid SO = Solid T = Tissue
Print First and Last Name	st Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time	SL = Sludge	WI = Wipe
Relinquished By: Fed EX	Per m			Received By: Chakeris Tarpling A	1 1 1 1 1 1 1	che ellest	w = water o = oil	L = Liquid V = Vegetation
Print First and Last Name	st Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time	A = Air	X = Other
GRelinquished By:				Received By:			-	
Print First and Last Name	st Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to cus	stomer, per lab prα	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	λ.:		Date/Time:
Printed On 2/22/2018	2.0			ESR ID = FSR403				

Collector: Lany Rosans	STAIN OF CONTOURNER AND AND THE AND TH	IALYSIS REQUEST	S18-004-093
	448316	1183hh	Page 1 of 1
	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	76-4650
SAF No.: S18-004	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	Code: 300071
Project Title: SURV, APRIL 2018	Logbook No.: HNF-N-506 97/94	Ice Chest No.: GWS-582	-582
Shipped To (Lab): GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill N	Bill of Lading/Air Bill No.: ワハスハトロネシラ7ミト
Protocol CERCLA	Priority: 30 Days	Offsite Property No.:	22,2
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS CONCENTRATIONS that are CFR / IATA Dangerous Per DOE Order 458.1	SN	
Sample No. Filter * Date Time No/Tyl	No/Type Container Sample Analysis	Hold	Holding Time Preservative
B3HT59 $ \mathbf{v} \mathbf{v} \mathbf{v} \mathbf{v} \mathbf{v} \mathbf{v} $ 1x5	1x500-mL G/P 6020_METALS_ICPMS: Chromium (1)	9	Months HNO3 to pH <2
B3HT56 N W 4-17-19 0925 1x5	1x500-mL G/P 6020_METALS_ICPMS: Chromium (1)	9	Months HNO3 to pH <2

	:	Matrix *
ignature		DS = Drum Solids
	SO = Solid	DL = Drum Liquia T = Tissue
Signature Date/	·	WI = Wipe
/81/h ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Т	L = Llquid V = Vegetation
	⋖	X = Other
Signature Date/	ime	
Disposed By:		Date/Time:
		A-6004-842 (REV 3)
Received By ^{Troy} Bacon And Last Name S Print First and Last Name S Received By: FEDEX Print First and Last Name S Received By: FIRST Name S Print First and Last Name S Received By: FIRST Name S Print First and Last Name S Print First And L	ignature ignature gnature Dispos	Grature Date/Time SE = Soil Signature Date/Time W = Water Objective Date/Time Date/Ti

CH2MHill Plateau CR2MHill Plateau CREMEdiation Company	ր Մ		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	SIS REQUEST	C.O.C.# S18-004-099
	7			218844	Page 1 of 1
Collector: Lary Rosane		Con	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	5.0
SAF No.: S18-004		San	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	300071
Project Title: SURV, APRIL 2018	018	Log	Logbook No.: HNF-N-506 97/94	Ice Chest No.: 6 15 -582	25
Shipped To (Lab): GEL Laboratories,	2000	LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 7730 19333750	グイグのグラーので
Protocol CERCLA		Prio	Priority: 30 Days	Offsite Property No.:	こので
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	MARK Materia ation p ot rele	l at concentrati er 49 CFR / IATR asable per DOE C	SPECIAL INSTRUCTIONS ons that are N/A . Dangerous brder 458.1		
Sample No. Filter * Date	Time	No/Type Container	Sample Analysis	Holding Time	le Preservative
8/80 8/-L/-4 M N IdIHEB	8180	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B3HTP1 N W	->	1x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2
ВЗНТР4 Х М 4-17-18 08/8	8186	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

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Relinquished Busine	Mann APR	APR 17 2018 1040	Received By Bacon	000 ADD 17 2010 680	2000	Ñ	*
Print First and Last Name	Signature	Date/Time	'	Signature 11	Date/Time	S = Soil DS :	DS = Drum Solids
y: Troy Bacon CA	Relinquished By: They Bacon [North Pacest APR 17 2018 100	2 1 7 20181400	Received By: REDEX			-	JL = Urum L F = Tissue
Print First and Last Name	, Signature	Date/Time	Print First and Last Name	Signature	Date/Time	₹.	WI = Wipe
Relinquished By: Fed EX			Received B@hakeris Tarplin GBL Laboratories	1, Not - 1, Not 1	21/81/h	iter L	= Liquid = Vegetation
Print First and Last Name	Signature	Date/Time		Signature	Date/Time	A = Air X =	= Other
Relinquished By:			Received By:				
Print First and Last Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		
INAL SAMPLE Disposal Met	hod (e.g., Return to cu	stomer, per lab pr	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process): DISPOSITION	Disposed By:		Da	Date/Time:
orociocic.			OF CARCE OF COL				

Dad				
ge 22 of	CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.	04-
.06	Collector: Larry Rosane	Contact/Requester: Karen Waters-Husted	7 (8516 Telephone No.: 509-376-4650	Page 1 Of 1
	SAF No.: S18-004	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	0071
	Project Title: SURV, APRIL 2018	Logbook No.: HNF-N-506 97/94	Ice Chest No.: 6W5-582	**************************************
	Shipped To (Lab): GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 71720 1933 3756	1932 3751
	Protocol CERCLA	Priority: 30 Days	Offsite Property No.:	カバロ
	POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that not regulated for transportation per 49 CFR / IATA Dangeron Goods Regulations but are not releasable per DOE Order 458.	trations that are N/A IATA Dangerous DOE Order 458.1		
	Sample No. Filter * Date Time No/Type Container	ainer Sample Analysis	Holding Time	Preservative
	B3HVD1 x W 4-17-18 OB49 1x500-mL G/P	G/P 6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
	B3HVC8 N W 4-17-10 0849 1x500-mL G/P	G/P 6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

	Matrix *	DS = Drum Solids	SC = Solid T = Tissue	WI = Wipe	L = Liquid V = Vegetation	X = Other			Date/Time:	A-6004-842 (REV 3)
	:	SOSII	SO = Solid	SL = Sludge	≥ O ·	A = Air				
	7 2018 1046	/ Colling Date/Time		Date/Time	9h 81/81/h	Date/Time		Date/Time		
しとま	10401 MPB 177118 1046	Signature		Signature	Charles I was	Signature		Signature	Disposed By:	Angelinisten einen e
4-17-18 as 12 12 THERE	Received By Control Broad ONFRC TAB	Print First and Last Name	Received By: FOEX	Print First and Last Name	Received ByChakeris Tarplin GEL Laboratorics	Print First and Last Name	Received By:	Print First and Last Name	procedure, used in process):	FSR ID = FSR58115
	APR 17 7019	, Date/Time	0			Date/Time		Date/Time		
	Rosane APR 1	Signature	COMPRICATION () CONTROL () CAPP 17 2018			Signature		Signature	hod (e.g., Return to custor	-
	Relinquished Bysme	Print First and Last Name	Relinquished By: 1.1. Figure 1 Tray Bacon. Others. 1.2. I CHPRG. 1.2. I	Print First and Last Name	Relinquished By: Fed EX	Print First and Last Name	Relinquished By:	Print First and Last Name	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab DISPOSITION	Printed On 2/22/2018
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e 23 of 9		CH2MHill Plateau Remediation Company	Уп		CHAIN OF CUSTODY/	OF CUSTODY/SAMPLE ANALYSIS REQUEST	S REQUEST		C.O.C.# S18-004-102 Page 1 of 1
	Collector:	Danlel Klug CHPRC		Col	Contact/Requester: Karen Waters-Husted	rs-Husted	Telephone No.: 509-376-4650)9-376-4650	
	SAF No.:	S18-004		Sar	Sampling Origin: Hanford Site	te	Purchase Order/Charge Code: 300071	large Code: 30(0071
	Project Title:	SURV, APRIL 2018	18	Log	Logbook No.: HNF-N-506 44:30	× 0	Ice Chest No.: (2/1) 5-582	115-583	~
	Shipped To (Lab	Shipped To (Lab): GEL Laboratories,	les, LLC		Method of Shipment Commercial Carrier	l Carrier	Bill of Lading/Air Bill No.: 1773 0 1932 3750	III No.: ATTA	0/16/2/2010
	Protocol	CERCLA		Pric	Priority: 30 Days		Offsite Property No.:		ころの
· · · · · · · · · · · · · · · · · · ·	POSSIBLE SAMI ** ** Contain not regulated Goods Regulat	POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that not regulated for transportation per 49 CFR / IATA Dangerou Goods Regulations but are not releasable per DOE Order 458.	MRK aterial tion per t releas	at concentrat. : 49 CFR / IAT; :able per DOE (are 1	SPECIAL INSTRUCTIONS			
	Sample No. Filter	* Date	Time	No/Type Container		Sample Analysis	L	Holding Time	Preservative
•	взнуг9 🔻	SESO 31-61-18 M	1835	1x500-mL G/P	6020_METALS_ICPMS: Chrc	Chromium (1)		6 Months	HNO3 to pH <2
	взнуғ6 м	2580 81-61-4 W	2835	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	omium (1)		6 Months	HNO3 to pH <2
•	Annual control of the second s	outransistation and and the free production of the free production o				**************************************	The state of the s		

	5601				
Relinquished By: D. K.	APR 17 7018	Received By: Roger Friesz 5r.	APR 17 2018 1045	ž	
Print First and Last Name	Signature Date/Time	Print First and Last Name	Signature Date/Time	S Soil DS Drum Solids	olids .
Relinquished By: Roger Friesz In	APR 17 2018 1400	Received By: FEDEX		Ę	pinb
Print First and Last Name	Signature Date/Time	Print First and Last Name	Signature Date/Time	- SL = Sludge WI	*·
Relinquished By: Fed Ex		Received ByChakeris Tarplin, CEL Laboratories	12 1/8/18 210 W/8/18 210	w = water L 0 = Oil V	ion
Print First and Last Name	Signature Date/Time	Print First and Last Name	Signature Date/Time	- A = Air X = Other	······································
Relinquished By:		Received By:			
Print First and Last Name	Signature Date/Time	Print First and Last Name	Signature Date/Time	ran.	
INAL SAMPLE Disposal Method DISPOSITION	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process):	procedure, used in process):	Disposed By:	Date/Time:	
2/22/2018		FSR ID = FSR58117		A-6004-842 (REV 3)	REV 3)

A-6004-842 (REV 3)

Date/Time:

Date/Time

Signature

Print First and Last Name

Date/Time

Signature

Print First and Last Name

Disposed By:

FSR ID = FSR58121

 FINAL SAMPLE
 Disposal Method (e.g., Return to customer, per lab procedure, used in process):

 DISPOSITION
 Printed On 2/22/2018

FSR ID = FSR5813

24 c	MHill diati	CH2MHill Plateau Remediation Company	au Sanv	***************************************	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	NALYSIS REQUEST		CO.C.# S18-004-105
		4	T area.			ስ	188216	Page 1 of 1
Collector:	Santel Klug	50		Cor	Contact/Requester; Karen Waters-Husted	Telephone No.: 509-376-4650	509-376-4650	
SAF No.:	S18	S18-004		San	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	harge Code: 30	0071
Project Title:	SUR	SURV, APRIL 2018	2018	Pog	Logbook No.: HNF-N-506-97-30	Ice Chest No.: CいろーSのス	WS-582	
Shipped To (Lab): GEL Laboratories,	ab); GEL	Laborato		LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air	Bill No.: AND.	Bill of Lading/Air Bill No.: 2720 1935 3750
Protocol	CER	CERCLA		Pric	Priority: 30 Days	Offsite Property No.:		27.2
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Mater not regulated for transportation Goods Regulations but are not re	MPLE H ins Rad ed for ations	AZARDS/RE lioactive transport but are n	EMARK Materia cation prot rele	POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	ions that are N/A A Dangerous Order 458.1	ONS		
Sample No. Filter	lter *	Date	Time	No/Type Container	Sample Analysis	8	Holding Time	Preservative
B3HV20	M N	81-LJ-h	2560	1x250-mL G/P	2320_ALKALINITY: GW 01		14 Days	Cool <=6C
B3HV20	Z Z	るとしてな	asbo	1x500-mL G/P	6020_METALS_ICP: GW 04; 6020_METALS_ICPMS: Chromium (1)		6 Months	HNO3 to pH <2
B3HV26	K K	4-17-18 0950	82	1x500-mL G/P	6020_METALS_ICP: GW 04; 6020_METALS_ICPMS: Chromium (1)		6 Months	HNO3 to pH <2

	<u> </u>			
Relinquished Bykna) . K	APR 17 2018	Received By: Roger Friesz dr. Australia Roger Fr	7 APR 17 2018 1045	W
Print First and Last Name Signature		Print First and Last Name Sfgm	ature Date/Time	S = Soil DS = Drum Solids
Relinquished By ger Friesz Jr.	ZAPR 17 2018 1400	Received By: FEDEX		Solid
Print First and Last-Name // Signature	ture Date/Time	Print First and Last Name	Signature Date/Time	₹.
Relinquished By: Fed Ex	1	Received Bylakeris Tarplin	01/81/h	w = water L = Liquid O = Oil V = Vegetation
Print First and Last Name Signature	ture Date/Time	Print First and Last Name Signature	-	A = Air X = Other
Relinquished By:		Received By:		-

Q Q	MHil.	CH2MHill Plateau	ដូ		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	YSIS REQUEST	C.O.C.# S18-004-106
Relie	ב ב ב	remearación company)alı y			218844	Page 1 of 1
Collector:	Den	Danlel Klug CHPRG		00	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650	50
SAF No.:	S1	S18-004		Sa	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	300071
Project Title:	SU	SURV, APRIL 2018	2018	Γο	Logbook No.: HNF-N-506 -9 9-3 0	Ice Chest No.: @ 1,45 -5 8 3	82
Shipped To (Lab): GEL Laboratories,	ab): GE	'L Laborato	18 8	LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 7020 933375	120193331
Protocol	CE	CERCLA		Pr	Priority: 30 Days	Offsite Property No.:	ファ
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Mater not regulated for transportation Goods Regulations but are not re	MPLE I ins Re ad for ations	HAZARDS/RE adioactive transport s but are r	EMARK Materid cation R	POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	SPECIAL INSTRUCTIONS tions that are N/A TA Dangerous Order 458.1		
Sample No. Filter	iter *	Date	Time	No/Type Container	Sample Analysis	Holding Time	ne Preservative
B3HV21	N	9-17-19	of the	1x250-mL G/P	2320_ALKALINITY: GW 01	14 Days	Cool <=6C
B3HV21 I	N	0560 8161-4	وطعه	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: Chromium (1)	6 Months	s HNO3 to pH <2
ВЗНV27	M A	asbo 8424 1	asbo	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: Chromium (1)	6 Months	s HNO3 to pH <2

	2/	1045					
Relinquishandi Rus 7. K	APR 17 2018		Received ByRoger Frieszaff.	V APR 17 2018 1045	Shal	Ž	Matrix *
Print First and Last Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		DS = Drum Solids
Relinquished By: Roger Friesz Jr.	7 APR 17 3018 /400	03h/ 8	Received By: FEDEX				SO = Solid T = Tissue
Print First and Last Name (Signature		Print First and Last Name	Signature	Date/Time	SL = Sludge \	vvi = vvipe
Z Relinquished By:			Received ByChakeris Tarplin Check	- Set .	91/81/h	o = Oil	/ = Vegetation
Print First and Last Name	Signature	Date/Time	رد		Date/Time	Y HAIL	- Ctner
Relinquished By:			Received By:			. *	
Print First and Last Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		
FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process): DISPOSITION	(e.g., Return to custome	r, per lab pro	cedure, used in process):	Disposed By:	-		Date/Time:
Printed On 2/22/2018			FSR ID = FSR58121				A-6004-842 (REV 3)

A-6004-842 (REV 3)

FSR ID = FSR58662

3/8/2018

Printed On

DISPOSITION

		127.0	
	CHAIN OF CUSTODY/SAMPLE	OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# S18-004-131
o remediación company		3/28hh	Page 1 of 1
Collector: Larry Rosans (Chipec	Contact/Requester: Karen Waters-Husted	Telephone	76-4650
SAF No.: S18-004	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071	: Code: 300071
Project Title: SURV, APRIL 2018	Logbook No.: HNF-N-506 97/93	Ice Chest No: 6135-582	r587
Shipped To (Lab): GEL Laboratories, LLC	Method of Shipment Commercial Carrier	Bill of Lading/Air Bill N	Bill of Lading/Air Bill No.: 71730 1933 3755
Protocol CERCLA	Priority: 30 Days	Offsite Property No.: 9314	934
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that not regulated for transportation per 49 CFR / IATA Dangerou Goods Regulations but are not releasable per DOE Order 458.	at concentrations that are N/A 49 CFR / IATA Dangerous able per DOE Order 458.1	JCTIONS	
Sample No. Filter * Date Time No	No/Type Container Sample Analysis		Holding Time Preservative
B3HTW4 N W 4.13-18 1001	1x4-L G/P I129LL SEP LEPS GS LL: COMMON	9	6 Months None

DS = Drum Solids SE = Sediment DL = Drum Liquid SO = Solid T = Tissue = Vegetation Date/Time: = Liquid WI = Wipe = Other Matrix * SL = Sludge W = Water = Soil | O = O = Air ong 81/81/h <u>ਬ</u> のサナー出帯・ナオの MR 17 Mile ... Date/Time Date/Time Date/Time APR-17-2008 APR-17-2008-12-18 Disposed By: 5 Signature Signature Signature J Last 1...
Roger Friesz Jr. 1. 湖岛 Received By Chakeris Tarpling Received By CEL Laboratories THOUS THE Received By: Roger Print First and Last Name Disposal Method (e.g., Return to customer, per lab procedure, used in process): APR 17 7018 (HX) Received By: Received By: Coane APR 12 2018 1400 Signature APR 1 7 2018 1418 Date/Time Date/Time Signature Signature Fed Ex Relinquished By: Roger Fright Jr. ICHERC Print First and Last Warme Print First and Last Name Print First and Last, Name Relinquishesh Brosans KHPRO FINAL SAMPLE Relinquished By:

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CH2MHill Plateau	CHAIN O	OF CUSTODY/SAMPLE ANALYSIS REQUEST	SIS REQUEST	C.O.C.# S18-004-397
5-1-1-1-1 f	•		918844	Page 1 of 1
Collector: Marc Expense Danks Nove Collector: Nove Nove Collector	Contact/Request	ster: Karen Waters-Husted	Telephone No.: 509-376-4650	0,
SAF No.: S18-004	Sampling Origin:	: Hanford Site	Purchase Order/Charge Code: 300071	300071
Project Title: SURV, APRIL 2018	Logbook No.: H	HNF-N-506-91-30	lce Chest No.: C WS。 う8ス	33
Shipped To (Lab): GEL Laboratories, LLC		Method of Shipment Commercial Carrier	Bill of Lading/Air Bill No.: 11720 1933 3756	201933370
Protocol CERCLA	Priority: 30 Da	Days	Offsite Property No.:	なりで
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that a not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1	l at concentrations that a er 49 CFR / IATA Dangerous asable per DOE Order 458.1	SPECIAL INSTRUCTIONS are N/A 1		
Sample No. Filter * Date Time N	No/Type Container	Sample Analysis	Holding Time	e Preservative
B3HWN5 N W 4-(7-/9 0932	1x250-mL P TRITIUM D	DIST LSC: COMMON	6 Months	None

- Color		7045/					
Relinquished By	Ly	APR 17 2018	Received By: Roger Friesz Jr.	A APR 17 2018 1045	Shol		Matrix *
Print First and Last Name	e // Signature	Date/Time	Print First and Last Name	Signature	Date/Time	S = SOII	S = Soll DS = Drum Solids
To Relinquished By: Roger Friesz Ja CHPRC	1	ÁPR 17 2018 1400	Received By: FEDEX			SO = Solid	T = Tissue
Print First and Last Name	e (// Signature	Date/Time	Print First and Last Name	Signature	Date/Time	SL = Sluage W = Water	vvi = vvipe
Relinquished By: Fed FX	×		Received By:Chakeris Tarplin GEL Laboratories	100 Jan	5/1/21/h		V = Vegetation
Print First and Last Name	e Signature	Date/Time	Print First and Last Name	Signature	Date/Time	A = AIr	X = Other
G Relinquished By:			Received By:	1			
Print First and Last Name	Signature	Date/Time	Print First and Last Name	Signature	Date/Time		
FINAL SAMPLE Dispos DISPOSITION	sal Method (e.g., Return to	customer, per lab pro	FINAL SAMPLE Disposal Method (e.g., Return to customer, per lab procedure, used in process): DISPOSITION	Disposed By:			Date/Time:
Printed On 2/22/2018			FSR ID = FSR58120				A-6004-842 (REV 3)

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GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Cli	ent: CPRC			SDC	G/AR/COC/Work Order: 448316
Rec	eived By: C. Tarplin			1	e Received: Apr 18, 2018
	Carrier and Tracking Number				Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other
		S)		*If N	Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further
	pected Hazard Information	Yes	ž	inve	stigation.
CO	ped as a DOT Hazardous? C/Samples marked or classified as pactive?	Ϋ́		Max Clas	ard Class Shipped: UN#: imum Net Counts Observed* (Observed Counts - Area Background Counts): CPN / mR/Hr isified as: Rad 1 Rad 2 Rad 3
Is pa	ckage, COC, and/or Samples marked HAZ?		Х	If ye PCE	s, select Hazards below, and contact the GEL Safety Group. S Flammable Foreign Soil RCRA Asbestos Beryllium Other:
Г	Sample Receipt Criteria	Yes	AA	ŝ	Comments/Qualiflers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	Х			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	Χ			
3	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$?*	X			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: \(\frac{1}{C}\)
4	Daily check performed and passed on IR temperature gun?	X			Temperature Device Serial #:
5	Sample containers intact and sealed?	X			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	Χ			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			X	If Yes, Are Encores or Soil Kits present? Yes No_ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes No_ N/A_ (If unknown, select No) VOA vials free of headspace? Yes No_ N/A_ Sample ID's and containers affected:
8	Samples received within holding time?	Χ			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	Χ			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	Χ			Sample ID's affected:
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			X	
13	COC form is properly signed in relinquished/received sections?	X			
Con	ments (Use Continuation Form if needed): PM (or PMA) revie	w: In	itials		(18) Date 4/19/18 Page of 1
					GL-CHL-SR-001 Rev 5

Data Review Qualifier Definitions

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Report Date: 14-MAY-18

2040 Savage Road Charleston, SC 29407 (843) 556-8171

Project Specific Qualifier Definitions for GEL Client Code: **CPRC**

Qualifier	Qualifier Definition	Department	Fraction
U	Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.		
J	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated	Organics	
Р	Aroclor target analyte with greater than 25% difference between column analyses.	Organics	
0	Analyte has been confirmed by GC/MS analysis	Organics	Pesticide
3	The analyte was detected in both the associated QC blank and in the sample.	Organics	
Ē	Concentration exceeds the calibration range of the instrument	Organics	
4	The TIC is a suspected aldol–condensation product	Organics	Semi-Volatile
(Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
1	Spike Sample recovery is outside control limits.		
	Duplicate analysis not within control limits	Inorganics	
	Result greater than quantifiable range or greater than upper limit of the analysis range	General Chemistry	
<u>,</u>	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
3	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	Inorganics	Metals
)	Results are reported from a diluted aliquot of sample.		
	Reported value is estimated due to interferences. See comment in narrative.	Inorganics	Metals
1	Duplicate precision not met.	Inorganics	Metals
	Analyte failed to recover within LCS limits (0rganics only)	Organics	
;	Reported value determined by the Method of Standard Additions (MSA)	Inorganics	
•	Spike and/or spike duplicate sample recovery is outside control limits.	Organics	
V	Post–digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.	Inorganics	
3	The analyte was detected in the associated method blank >/= MDC or >5% sample activity.	Radiological	
,	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier		
+	Correlation coefficient for Method of Standard Additions (MSA) is < 0.995	Inorganics	
}	The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).	General Chemistry	
;	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	Inorganics	Metals
	Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.	General Chemistry	
: JX	Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide Gamma Spectroscopy—Uncertain identification	General Chemistry Radiological	



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List of current GEL Certifications as of 14 May 2018

CAnAn	C4:6:4:		
State Alaska	Certification 17–018		
Arkansas	88-0651		
CLIA	42D0904046		
California	2940		
Colorado	SC00012		
Connecticut	PH-0169		
Delaware	SC00012		
DoD ELAP/ ISO17025 A2LA	2567.01		
Florida NELAP	E87156		
Foreign Soils Permit	P330-15-00283, P330-15-00253		
Georgia	SC00012		
Georgia SDWA	967		
Hawaii	SC00012		
Idaho Chemistry	SC00012		
Idaho Radiochemistry	SC00012		
Illinois NELAP	200029		
Indiana	C-SC-01		
Kansas NELAP	E-10332		
Kentucky SDWA	90129		
Kentucky Wastewater	90129		
Louisiana NELAP	03046 (AI33904)		
Louisiana SDWA	LA180011		
Maryland	270		
Massachusetts	M-SC012		
Michigan	9976		
Mississippi	SC00012		
Nebraska	NE-OS-26-13		
Nevada	SC000122018-1		
New Hampshire NELAP	205415		
New Jersey NELAP	SC002		
New Mexico	SC00012		
New York NELAP	11501		
North Carolina	233		
North Carolina SDWA	45709		
North Dakota	R-158		
Oklahoma	9904		
Pennsylvania NELAP	68-00485		
Puerto Rico	SC00012		
S. Carolina Radiochem	10120002		
South Carolina Chemistry	10120001		
Tennessee	TN 02934		
Texas NELAP	T104704235-18-13		
Utah NELAP	SC000122018–26		
Vermont	VT87156		
Virginia NELAP	460202		
Washington	C780		
West Virginia	997404		

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Metals

Technical Case Narrative CH2MHill Plateau Remediation Company (CPRC) SDG #: GEL448316 Work Order #: 448316

Product: Determination of Metals by ICP Analytical Method: SW846 3005A/6010D **Analytical Procedure:** GL-MA-E-013 REV# 30

Analytical Batch: 1756921

Product: Determination of Metals by ICP-MS Analytical Method: SW846 3005A/6020B Analytical Procedure: GL-MA-E-014 REV# 32

Analytical Batch: 1756931

Preparation Method: SW846 3005A

Preparation Procedure: GL-MA-E-006 REV# 14 **Preparation Batches:** 1756920 and 1756929

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
448316009	B3HTC7
448316010	B3HTC4
448316011	B3HTD0
448316012	B3HTD6
448316013	B3HTD1
448316014	B3HTD7
448316015	B3HT59
448316016	B3HT56
448316017	B3HTP1
448316018	B3HTP4
448316019	B3HVD1
448316020	B3HVC8
448316021	B3HVF9
448316022	B3HVF6
448316023	B3HV20
448316024	B3HV26
448316025	B3HV21
448316026	B3HV27
1204011923	Method Blank (MB)ICP
1204011924	Laboratory Control Sample (LCS)
1204011927	448316023(B3HV20L) Serial Dilution (SD)
1204011925	448316023(B3HV20S) Matrix Spike (MS)
1204011926	448316023(B3HV20SD) Matrix Spike Duplicate (MSD)
1204023006	448316023(B3HV20PS) Post Spike (PS)
1204011942	Method Blank (MB) ICP-MS
1204011943	Laboratory Control Sample (LCS)
1204011946	448314001(NonSDGL) Serial Dilution (SD)
1204011944	448314001(NonSDGS) Matrix Spike (MS)
1204011945	448314001(NonSDGSD) Matrix Spike Duplicate (MSD)

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The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

ICSA/ICSAB Statement

For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks(CCB) bracketing the sample in this SDG did not meet the acceptance criteria. The samples bracketed by this CCB, however, contained sodium at a concentration at least ten times greater than the concentration in the CCB. This indicates that any contribution to the concentration of sodium in the samples from potential laboratory contamination would be minimal. 448316023 (B3HV20), 448316024 (B3HV26), 448316025 (B3HV21) and 448316026 (B3HV27)-ICP.

Quality Control (QC) Information

Method Blank (MB) Statement

The samples in this SDG contained analytes at concentrations more than ten times the amount present in the method blank, therefore the data was not adversely affected.

Sample	Analyte	Value
1204011923 (MB)	Potassium and Sodium	See applicable report

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike also did not meet the required control limits; thus, confirming matrix interferences and/or sample non-homogeneity.

Sample	Analyte	Value
1204011925 (B3HV20MS)	Sodium	73.8* (75%-125%)

Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the PS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The PS did not meet the recommended quality control acceptance criteria for percent recoveries for all applicable analytes and verifies the presence of matrix interferences.

Sample	Analyte	Value
1204023006 (B3HV20PS)	Sodium	57.2* (75%-125%)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

CPRC001 CH2MHill Plateau Remediation Company Client SDG: GEL448316 GEL Work Order: 448316

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq = EQL or is \geq 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- N Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Name: Nik-Cole Elmore

Date: 14 MAY 2018 Title: Data Validator

Sample Data Summary

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-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316009 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HTC7 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	10.3	ug/L		3	10	10	1	MS	SKJ	05/10/18 22:59	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316010 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HTC4 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	10.2	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:03	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316011 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HTD0 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	SKJ	05/10/18 23:07	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316012 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HTD6 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	3	ug/L	U	3	10	10	1	MS	SKJ	05/10/18 23:10	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316013 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HTD1 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	25.8	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:14	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316014 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HTD7 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	25.6	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:26	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316015 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HT59 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	16.1	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:30	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316016 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HT56 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	17.5	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:34	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316017 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HTP1 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	15.4	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:38	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316018 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HTP4 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	14.9	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:42	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316019 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HVD1 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	23.4	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:46	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316020 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HVC8 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-47-3	Chromium	24.9	ug/L		3	10	10	1	MS	SKJ	05/10/18 23:58	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316021 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HVF9 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

	CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
74	40-47-3	Chromium	30.6	ug/L		3	10	10	1	MS	SKJ	05/11/18 00:02	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316022 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HVF6 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440–47–3	Chromium	30.7	ug/L		3	10	10	1	MS	SKJ	05/11/18 00:06	180510-3	1756931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

-1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316023 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HV20 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	15.3	ug/L	В	15	50	50	1	P	JWJ	05/01/18 19:51	050118-1	1756921
7440-70-2		51800	ug/L		50	200	200	1	P	JWJ	05/01/18 19:51	050118-1	1756921
7440-47-3	Chromium	11	ug/L		3	10	10	1	MS	SKJ	05/11/18 00:10	180510-3	1756931
7439–89–6	Iron	30	ug/L	U	30	100	100	1	P	JWJ	05/01/18 19:51	050118-1	1756921
7439–95–4	Magnesium	15500	ug/L		110	300	300	1	P	JWJ	05/01/18 19:51	050118-1	1756921
7440-09-7	Potassium	5570	ug/L		50	150	150	1	P	JWJ	05/01/18 19:51	050118-1	1756921
7440-23-5		20000	ug/L	N	100	300	300	1	P	JWJ	05/01/18 19:51	050118-1	1756921
7440-62-2	Vanadium	8.1	ug/L		1	5	5	1	P	JWJ	05/01/18 19:51	050118-1	1756921

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756921	1756920	SW846 3005A	50	mL	50	mL	04/19/18	SXW1
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

P SW846 3005A/6010D MS SW846 3005A/6020B

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METALS -1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316024 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HV26 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8		15	ug/L	U	15	50	50	1	P	JWJ	05/01/18 20:02	050118-1	1756921
7440-70-2		51400	ug/L		50	200	200	1	P	JWJ	05/01/18 20:02	050118-1	1756921
7440–47–3	Chromium	10.6	ug/L		3	10	10	1	MS	SKJ	05/11/18 00:14	180510-3	1756931
7439–89–6		30	ug/L	U	30	100	100	1	P	JWJ	05/01/18 20:02	050118-1	1756921
	Magnesium	15400	ug/L		110	300	300	1	P	JWJ	05/01/18 20:02	050118-1	1756921
	Potassium	5510	ug/L		50	150	150	1	P	JWJ	05/01/18 20:02	050118-1	1756921
7440-23-5	Sodium	19700	ug/L	N	100	300	300	1	P	JWJ	05/01/18 20:02	050118-1	1756921
7440-62-2	Vanadium	8.35	ug/L		1	5	5	1	P	JWJ	05/01/18 20:02	050118-1	1756921

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756921	1756920	SW846 3005A	50	mL	50	mL	04/19/18	SXW1
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

P SW846 3005A/6010D MS SW846 3005A/6020B

METALS -1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316025 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HV21 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8	Boron	15	ug/L	U	15	50	50	1	P	JWJ	05/01/18 20:05	050118-1	1756921
7440-70-2		52400	ug/L		50	200	200	1	P	JWJ	05/01/18 20:05	050118-1	1756921
7440–47–3	Chromium	10.9	ug/L		3	10	10	1	MS	SKJ	05/11/18 00:18	180510-3	1756931
7439–89–6	1.011	30	ug/L	U	30	100	100	1	P	JWJ	05/01/18 20:05	050118-1	1756921
	Magnesium	15500	ug/L		110	300	300	1	P	JWJ	05/01/18 20:05	050118-1	1756921
	Potassium	5560	ug/L		50	150	150	1	P	JWJ	05/01/18 20:05	050118-1	1756921
7440-23-5	Sodium	19900	ug/L	N	100	300	300	1	P	JWJ	05/01/18 20:05	050118-1	1756921
7440-62-2	Vanadium	8.3	ug/L		1	5	5	1	P	JWJ	05/01/18 20:05	050118-1	1756921

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756921	1756920	SW846 3005A	50	mL	50	mL	04/19/18	SXW1
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

P SW846 3005A/6010D MS SW846 3005A/6020B

METALS -1-

INORGANICS ANALYSIS DATA PACKAGE

SDG No: GEL448316 CONTRACT: CPRC0S18004 METHOD TYPE: SW846

SAMPLE ID:448316026 BASIS: As Received DATE COLLECTED 17-APR-18

CLIENT ID: B3HV27 LEVEL: Low DATE RECEIVED 18-APR-18

MATRIX: WATER %SOLIDS: 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7440-42-8		15	ug/L	U	15	50	50	1	P	JWJ	05/01/18 20:09	050118-1	1756921
7440-70-2		51700	ug/L		50	200	200	1	P	JWJ	05/01/18 20:09	050118-1	1756921
7440–47–3	Chromium	11.8	ug/L		3	10	10	1	MS	SKJ	05/11/18 00:21	180510-3	1756931
7439–89–6		30	ug/L	U	30	100	100	1	P	JWJ	05/01/18 20:09	050118-1	1756921
	Magnesium	15300	ug/L		110	300	300	1	P	JWJ	05/01/18 20:09	050118-1	1756921
	Potassium	5520	ug/L		50	150	150	1	P	JWJ	05/01/18 20:09	050118-1	1756921
7440-23-5	Sodium	19600	ug/L	N	100	300	300	1	P	JWJ	05/01/18 20:09	050118-1	1756921
7440-62-2	Vanadium	8.12	ug/L		1	5	5	1	P	JWJ	05/01/18 20:09	050118-1	1756921

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1756921	1756920	SW846 3005A	50	mL	50	mL	04/19/18	SXW1
1756931	1756929	SW846 3005A	50	mL	50	mL	04/19/18	SXW1

*Analytical Methods:

P SW846 3005A/6010D MS SW846 3005A/6020B



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QC Summary

Report Date: May 14, 2018

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CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC PO Box 1600

Richland, Washington Mr. Scot Fitzgerald

Workorder:

Contact:

448316

Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Metals Analysis - ICPMS Batch 1756931									
QC1204011943 LCS Chromium	50.0		48.2	ug/L		96.3	(80%-120%)	SKJ	05/10/18 22:23
QC1204011942 MB Chromium		U	3.00	ug/L					05/10/18 22:19
QC1204011944 448314001 MS Chromium	50.0	19.4	70.8	ug/L		103	(75%-125%)		05/10/18 22:31
QC1204011945 448314001 MSD Chromium	50.0	19.4	69.0	ug/L	2.48	99.3	(0%-20%)		05/10/18 22:35
QC1204011946 448314001 SDILT Chromium		19.4 BD	3.44	ug/L	11.1		(0%-20%)		05/10/18 22:43
Metals Analysis-ICP Batch 1756921									
QC1204011924 LCS Boron	500		520	ug/L		104	(80%-120%)	JWJ	05/01/18 19:48
Calcium	5000		5070	ug/L		101	(80%-120%)		
Iron	5000		5210	ug/L		104	(80%-120%)		
Magnesium	5000		5160	ug/L		103	(80%-120%)		
Potassium	5000		5200	ug/L		104	(80%-120%)		
Sodium	5000		5120	ug/L		102	(80%-120%)		

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QC Summary

				<u> </u>	Jumma	<u>. y</u>							
Workorder: 448316											Page 2 of 4		
Parmname	NON	<u> </u>	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time		
Metals Analysis-ICP Batch 1756921													
Vanadium	500				521	ug/L		104	(80%-120%)	JWJ	05/01/18 19:48		
QC1204011923 MB													
Boron				U	15.0	ug/L					05/01/18 19:45		
Calcium				U	50.0	ug/L							
Iron				U	30.0	ug/L							
Magnesium				U	110	ug/L							
Potassium					75.3	ug/L							
Sodium					296	ug/L							
Vanadium				U	1.00	ug/L							
QC1204011925 448316023 MS													
Boron	500	В	15.3		538	ug/L		104	(75%-125%))	05/01/18 19:54		
Calcium	5000		51800		53300	ug/L		N/A	(75%-125%))			
Iron	5000	U	30.0		5000	ug/L		99.8	(75%-125%))			
Magnesium	5000		15500		20200	ug/L		93.9	(75%-125%))			
Potassium	5000	C	5570		10400	ug/L		96.1	(75%-125%))			
Sodium	5000	CN	20000	N	23600	ug/L		73.8*	(75%-125%))			

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QC Summary

Workorder: 448316		<u> </u>										
Parmame 448316	NON	Л	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Page 3 of 4 Date Time		
Metals Analysis-ICP Batch 1756921	NOT	VI.	Sample Quai	<u> </u>	Cints	KI D/D /0	REC 70	Kange	Amst	Date Time		
Vanadium	500		8.10	512	ug/L		101	(75%-125%)	JWJ	05/01/18 19:54		
QC1204011926 448316023 MSD Boron	500	В	15.3	551	ug/L	2.37	107	(0%-20%)		05/01/18 19:56		
Calcium	5000		51800	54400	ug/L	2.09	N/A	(0%-20%)				
Iron	5000	U	30.0	4940	ug/L	1.16	98.7	(0%-20%)				
Magnesium	5000		15500	20400	ug/L	0.921	97.6	(0%-20%)				
Potassium	5000	C	5570	10400	ug/L	0.346	96.8	(0%-20%)				
Sodium	5000	CN	20000	24000	ug/L	1.33	80.2	(0%-20%)				
Vanadium	500		8.10	530	ug/L	3.47	104	(0%-20%)				
QC1204023006 448316023 PS Sodium	5000	CN	20000	22800	ug/L		57.2*	(75%-125%)		05/04/18 14:58		
QC1204011927 448316023 SDILT Boron		В	15.3 DU	75.0	ug/L	N/A		(0%-20%)		05/01/18 19:59		
Calcium			51800 D	10900	ug/L	5.32		(0%-20%)				
Iron		U	3.89 DU	150	ug/L	N/A		(0%-20%)				
Magnesium			15500 D	3550	ug/L	14.2		(0%-20%)				
Potassium		C	5570 D	1240	ug/L	11.2		(0%-20%)				

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QC Summary

Workorder: 448316 Page 4 of 4 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis-ICP Batch 1756921 Sodium CN 20000 D 4440 ug/L 11.4 (0%-20%)JWJ 05/01/18 19:59 8.10 BD 1.81 ug/L (0% - 20%)Vanadium 11.6

Notes:

The Qualifiers in this report are defined as follows:

- * Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E Reported value is estimated due to interferences. See comment in narrative.
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- S Reported value determined by the Method of Standard Additions (MSA)
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than

five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

General Chem Analysis

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General Chemistry Technical Case Narrative CH2MHill Plateau Remediation Company (CPRC) SDG #: GEL448316 Work Order #: 448316

Product: Ion Chromatography

Analytical Method: 9056_ANIONS_IC

Analytical Procedure: GL-GC-E-086 REV# 25 Analytical Batches: 1756886 and 1756893

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
448316001	B3HTC5
448316002	B3HTF2
448316003	B3HTF8
448316004	B3HT38
448316005	B3HT51
448316006	B3HVC9
448316007	B3HVF1
448316008	B3HV15
1204011850	Method Blank (MB)
1204011851	Laboratory Control Sample (LCS)
1204011852	448316005(B3HT51) Sample Duplicate (DUP)
1204011853	448316005(B3HT51) Post Spike (PS)
1204011858	Method Blank (MB)
1204011859	Laboratory Control Sample (LCS)
1204011860	448316001(B3HTC5) Sample Duplicate (DUP)
1204011861	448316001(B3HTC5) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Holding Times

Samples (See Below) were initially analyzed within holding; however, the holding times had expired prior to reanalysis of diluted samples. The data is qualified.

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Sample	Analyte	Value
1204011852 (B3HT51DUP)	Chloride and Nitrate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
1204011853 (B3HT51PS)	Chloride and Nitrate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
1204011860 (B3HTC5DUP)	Chloride and Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
1204011861 (B3HTC5PS)	Chloride and Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
448316001 (B3HTC5)	Chloride and Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
448316002 (B3HTF2)	Chloride and Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
448316003 (B3HTF8)	Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18
448316004 (B3HT38)	Sulfate	Received 18-APR-18, within holding, analyzed 19-APR-18, out of holding 19-APR-18

Sample Dilutions

The following samples 1204011852 (B3HT51DUP), 1204011853 (B3HT51PS), 448316005 (B3HT51), 448316006 (B3HVC9), 448316007 (B3HVF1), 448316008 (B3HV15), 1204011860 (B3HTC5DUP), 1204011861 (B3HTC5PS), 448316001 (B3HTC5), 448316002 (B3HTF2), 448316003 (B3HTF8) and 448316004 (B3HT38) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Amalasta		448316											
Analyte	001	002	003	004	005	006	007	008					
Chloride	10X	10X	2X	2X	5X	5X	5X	10X					
Nitrate	2X	1X	2X	2X	5X	5X	1X	1X					
Sulfate	10X	10X	20X	20X	20X	20X	5X	10X					

Miscellaneous Information

Manual Integrations

Samples 448316007 (B3HVF1), 448316008 (B3HV15), 1204011860 (B3HTC5DUP), 1204011861 (B3HTC5PS), 448316001 (B3HTC5), 448316002 (B3HTF2), 448316003 (B3HTF8) and 448316004 (B3HT38) were manually integrated to correctly position the baseline as set in the calibration standards.

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Product: Alkalinity

Analytical Method: 2320_ALKALINITY **Analytical Procedure:** GL-GC-E-033 REV# 13

Analytical Batch: 1757257

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# Client Sample Identification

448316023 B3HV20 448316025 B3HV21

1204012750 Laboratory Control Sample (LCS)

1204012751 447585014(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

CPRC001 CH2MHill Plateau Remediation Company Client SDG: GEL448316 GEL Work Order: 448316

The Qualifiers in this report are defined as follows:

- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- D Results are reported from a diluted aliquot of sample.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Mame: Aubrey Kingsbury

Date: 02 MAY 2018 Title: Data Validator

Sample Data Summary

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May 15, 2018

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Project:

Client ID:

Report Date: May 2, 2018

CPRC0S18004

CPRC001

Company: CH2MHill Plateau Remediation Company

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HTC5

Sample ID: 448316001

Matrix: WATER
Collect Date: 17-APR-18 08:04

Receive Date: 18-APR-18
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatograph	ny											
9056_ANIONS_IC	C: COMMON "As	Received"										
Fluoride	В	131	33.0	500	ug/L		1	LXA2	04/19/18	0404	1756893	1
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Nitrate-N	D	5990	66.0	250	ug/L		2	LXA2	04/19/18	0912	1756893	2
Chloride	D	16700	670	2000	ug/L		10	LXA2	04/19/18	1722	1756893	3
Sulfate	D	96300	1330	4000	ug/L		10					
Th. C.H. ' A. I C. I.M.d. I												

The following Analytical Methods were performed:

MethodDescriptionAnalyst Comments19056_ANIONS_IC

9056_ANIONS_IC
 9056_ANIONS_IC

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Project:

Client ID:

Analyst Comments

Report Date: May 2, 2018

CPRC0S18004

CPRC001

Company: CH2MHill Plateau Remediation Company

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HTF2 Sample ID: 448316002

Matrix: WATER

Collect Date: 17-APR-18 08:28 Receive Date: 18-APR-18 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: C	COMMON "As	Received"										
Fluoride	В	123	33.0	500	ug/L		1	LXA2	04/19/18	0534	1756893	1
Nitrate-N		3680	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Chloride	D	8810	670	2000	ug/L		10	LXA2	04/19/18	1852	1756893	2
Sulfate	D	101000	1330	4000	ug/L		10					
The following Analyt	tical Methods w	ere performe	1:									

Method Description
1 9056_ANIONS_IC

9056_ANIONS_IC

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Project:

Report Date: May 2, 2018

CPRC0S18004

CH2MHill Plateau Remediation Company Company:

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HTF8

Matrix:

Collect Date: 17-APR-18 08:40 18-APR-18 Receive Date: Collector: Client

Sample ID: 448316003 Client ID: CPRC001 WATER

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography	7											
9056_ANIONS_IC:	COMMON "As	Received"										
Fluoride	В	173	33.0	500	ug/L		1	LXA2	04/19/18	0604	1756893	1
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Chloride	D	14200	134	400	ug/L		2	LXA2	04/19/18	1042	1756893	2
Nitrate-N	D	4800	66.0	250	ug/L		2					
Sulfate	D	165000	2660	8000	ug/L		20	LXA2	04/19/18	1922	1756893	3
The following Anal	ytical Methods w	vere performed	:									

Description Method **Analyst Comments** 9056_ANIONS_IC

2 9056_ANIONS_IC 3 9056_ANIONS_IC

Notes:

Column headers are defined as follows:

Lc/LC: Critical Level DF: Dilution Factor DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 2, 2018

Company: CH2MHill Plateau Remediation Company

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HT38 Project: CPRC0S18004
Sample ID: 448316004 Client ID: CPRC001

Matrix: WATER

Collect Date: 17-APR-18 09:00
Receive Date: 18-APR-18
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst Date	Time Batch	Method
Ion Chromatograph	ıy									
9056_ANIONS_IC	: COMMON "As	Received"								
Fluoride	В	145	33.0	500	ug/L		1	LXA2 04/19/18	0634 1756893	1
Nitrite-N	U	33.0	33.0	250	ug/L		1			
Chloride	D	17700	134	400	ug/L		2	LXA2 04/19/18	1112 1756893	2
Nitrate-N	D	5940	66.0	250	ug/L		2			
Sulfate	D	177000	2660	8000	ug/L		20	LXA2 04/19/18	1952 1756893	3
The following Ang	lytical Mathode v	vara parformad	1.							

The following Analytical Methods were performed:

MethodDescriptionAnalyst Comments19056_ANIONS_IC

2 9056_ANIONS_IC 3 9056_ANIONS_IC

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Project:

Client ID:

Report Date: May 2, 2018

CPRC0S18004

CPRC001

Company: CH2MHill Plateau Remediation Company

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HT51 Sample ID: 448316005

Matrix: WATER

Collect Date: 17-APR-18 09:15
Receive Date: 18-APR-18
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF Ana	lyst Date	Time	Batch	Method
Ion Chromatograpl	hy										
9056_ANIONS_IC	C: COMMON "As	Received"									
Fluoride	В	304	33.0	500	ug/L		1 JXH	5 04/18/18	2145	1756886	1
Nitrite-N	U	33.0	33.0	250	ug/L		1				
Chloride	D	17300	335	1000	ug/L		5 JXH	5 04/19/18	1148	1756886	2
Nitrate-N	D	5610	165	500	ug/L		5				
Sulfate	D	190000	2660	8000	ug/L		20 JXH	5 04/19/18	2135	1756886	3
The following An	alutical Mathode u	vara parformad:									

The following Analytical Methods were performed:

Method Description Analyst Comments

9056_ANIONS_IC

9056_ANIONS_IC
 9056_ANIONS_IC

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Project:

Client ID:

Report Date: May 2, 2018

CPRC0S18004

CPRC001

Company: CH2MHill Plateau Remediation Company

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HVC9

Sample ID: 448316006 Matrix: WATER

Collect Date: 17-APR-18 08:49 Receive Date: 18-APR-18

Receive Date: 18-APR-18
Collector: Client

Parameter	Qualifier	Result	DL	, RL	Units	PF	DF	Analy	st Date	Time	e Batch	Method
Ion Chromatography	y											
9056_ANIONS_IC:	: COMMON "As	Received"										
Fluoride	В	261	33.0	500	ug/L		1	JXH5	04/18/18	2318	1756886	1
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Chloride	D	21500	335	1000	ug/L		5	JXH5	04/19/18	1045	1756886	2
Nitrate-N	D	7350	165	500	ug/L		5					
Sulfate	D	183000	2660	8000	ug/L		20	JXH5	04/19/18	2307	1756886	3
The following Anal	lvtical Methods v	vere performed	:									

Method Description Analyst Comments

1 9056_ANIONS_IC 2 9056_ANIONS_IC 3 9056_ANIONS_IC

Notes:

Column headers are defined as follows:

DF: Dilution Factor

DL: Detection Limit

MDA: Minimum Detectable Activity

Lc/LC: Critical Level

PF: Prep Factor

RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Project:

Client ID:

Analyst Comments

Report Date: May 2, 2018

CPRC0S18004

CPRC001

CH2MHill Plateau Remediation Company Company:

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald CHPRC SAF S18-004 Project:

Client Sample ID: B3HVF1 Sample ID: 448316007

Matrix: WATER

Collect Date: 17-APR-18 08:47 18-APR-18 Receive Date: Collector: Client

Parameter	Qualifier	Result	DI	. RL	Units	PF	DF	Analy	st Date	Time	Batch	Method
Ion Chromatography												
9056_ANIONS_IC: Co	OMMON "As	Received"										
Fluoride	В	305	33.0	500	ug/L		1	JXH5	04/18/18	2349	1756886	1
Nitrate-N		4700	33.0	250	ug/L		1					
Nitrite-N	U	33.0	33.0	250	ug/L		1					
Chloride	D	11400	335	1000	ug/L		5	JXH5	04/19/18	1117	1756886	2
Sulfate	D	67600	665	2000	ug/L		5					
The following Analyti	ical Methods w	ere performed	l:									

Method Description 9056_ANIONS_IC

9056_ANIONS_IC

Notes:

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Project:

Client ID:

Report Date: May 2, 2018

CPRC0S18004

JXH5 04/19/18 1319 1756886

CPRC001

Company: CH2MHill Plateau Remediation Company

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HV15 Sample ID: 448316008

Matrix: WATER

Collect Date: 17-APR-18 09:32 Receive Date: 18-APR-18 Collector: Client

U

D

33.0

10400

Qualifier DL RL PF Parameter Result Units DF Analyst Date Time Batch Method Ion Chromatography 9056 ANIONS IC: COMMON "As Received" Fluoride В 33.0 500 ug/L JXH5 04/19/18 0019 1756886 1 Nitrate-N 3610 33.0 250 ug/L 1

250

2000

4000

ug/L

ug/L

ug/L

10

10

D 90600 The following Analytical Methods were performed:

Description Method **Analyst Comments** 9056_ANIONS_IC

33.0

670

1330

2 9056_ANIONS_IC

Notes:

Nitrite-N

Chloride

Sulfate

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Project:

Client ID:

Report Date: May 2, 2018

CPRC0S18004

CPRC001

Company: CH2MHill Plateau Remediation Company

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HV20 Sample ID: 448316023

Matrix: WATER

Collect Date: 17-APR-18 09:50
Receive Date: 18-APR-18
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analyst Date	Time Batch	Method
Titration and Ion Analys	sis								
2320_ALKALINITY: C	W 01 "As R	eceived"							
Alkalinity, Total as CaCO3		118000	1450	4000	ug/L		RXB5 04/21/18	1331 1757257	1
Bicarbonate alkalinity (CaCO	3)	118000	1450	4000	ug/L				
Carbonate alkalinity (CaCO3)	U	1450	1450	4000	ug/L				
Hydroxide alkalinity as CaCO	3 U	1450	1450	4000	ug/L				
The following Analytic	al Methods v	vere performed:							
Method	Description				1	Analys	st Comments		

1 2320_ALKALINITY

Notes:

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level
DL: Detection Limit PF: Prep Factor
MDA: Minimum Detectable Activity RL: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: May 2, 2018

Company: CH2MHill Plateau Remediation Company

Address: MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington 99352

Contact: Mr. Scot Fitzgerald Project: CHPRC SAF S18-004

Client Sample ID: B3HV21 Project: CPRC0S18004 Sample ID: 448316025 Client ID: CPRC001

Matrix: WATER

Collect Date: 17-APR-18 09:50 18-APR-18 Receive Date: Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analyst Date	Time Batch	Method
Titration and Ion Analys	is								
2320_ALKALINITY: G	W 01 "As R	eceived"							
Alkalinity, Total as CaCO3		118000	1450	4000	ug/L		RXB5 04/21/18	1333 1757257	1
Bicarbonate alkalinity (CaCO3	5)	118000	1450	4000	ug/L				
Carbonate alkalinity (CaCO3)	U	1450	1450	4000	ug/L				
Hydroxide alkalinity as CaCO3	3 U	1450	1450	4000	ug/L				
The following Analytica	al Methods v	vere performed:							
Method	Description				1	Analys	st Comments		

2320_ALKALINITY

Notes:

Column headers are defined as follows:

DF: Dilution Factor Lc/LC: Critical Level DL: Detection Limit PF: Prep Factor MDA: Minimum Detectable Activity **RL**: Reporting Limit

MDC: Minimum Detectable Concentration SQL: Sample Quantitation Limit

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GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

, ____

Report Date: May 2, 2018

Page 1 of 4

CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC PO Box 1600

Richland, Washington

Contact:

Mr. Scot Fitzgerald

Workorder: 448316

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range A	nlst	Date	Time
Ion Chromatography Batch 1756886 ———												
QC1204011852 448316005 DUP Chloride		D	17300	D	17300	ug/L	0.00577		(0%-20%)	JXH5	04/19/1	8 12:19
Fluoride		В	304	В	313	ug/L	2.89	^	(+/-500)		04/18/1	8 22:16
Nitrate-N		D	5610	DX	5650	ug/L	0.577		(0%-20%)		04/19/1	8 12:19
Nitrite-N		U	33.0	U	33.0	ug/L	N/A				04/18/1	8 22:16
Sulfate		D	190000	D	190000	ug/L	0.0453		(0%-20%)		04/19/1	8 22:05
QC1204011851 LCS Chloride	5000				4780	ug/L		95.5	(80%-120%)		04/18/1	8 21:14
Fluoride	2500				2540	ug/L		101	(80%-120%)			
Nitrate-N	2500				2420	ug/L		96.9	(80%-120%)			
Nitrite-N	2500				2440	ug/L		97.8	(80%-120%)			
Sulfate	10000				9830	ug/L		98.3	(80%-120%)			
QC1204011850 MB Chloride				U	67.0	ug/L					04/18/1	8 20:43
Fluoride				U	33.0	ug/L						
Nitrate-N				U	33.0	ug/L						

GEL LABORATORIES LLC 2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 448316			_			 -					Page	2 of 4
Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Ion Chromatography Batch 1756886												
Nitrite-N				U	33.0	ug/L				JXH5	04/18/1	8 20:43
Sulfate				U	133	ug/L						
QC1204011853 448316005 PS Chloride	5.00	D	3.47	D	8.82	mg/L		107	(75%-125%)		04/19/1	8 12:50
Fluoride	2.50	В	0.304		2.83	mg/L		101	(75%-125%)		04/18/1	8 22:47
Nitrate-N	2.50	D	1.12	DX	3.73	mg/L		104	(75%-125%)		04/19/1	8 12:50
Nitrite-N	2.50	U	0.00		2.51	mg/L		100	(75%-125%)		04/18/1	8 22:47
Sulfate	10.0	D	9.49	D	20.0	mg/L		105	(75%-125%)		04/19/1	8 22:36
D. 1. 175(002												
Patch 1756893 ————————————————————————————————————		D	16700	D	16700	ug/L	0.0658		(0%-20%)	LXA2	04/19/1	8 17:52
Fluoride		В	131	В	133	ug/L	1.44 ′	\	(+/-500)		04/19/1	8 04:34
Nitrate-N		D	5990	D	5980	ug/L	0.13		(0%-20%)		04/19/1	8 09:42
Nitrite-N		U	33.0	U	33.0	ug/L	N/A				04/19/1	8 04:34
Sulfate		D	96300	D	96100	ug/L	0.28		(0%-20%)		04/19/1	8 17:52
QC1204011859 LCS Chloride	5000				4830	ug/L		96.6	(80%-120%)		04/19/1	8 03:34
Fluoride	2500				2650	ug/L		106	(80%-120%)			

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Parmname	NOM	ſ	Sample	Որցի	QC	Units	RPD%	REC%	Range Anlst	Page 3 of 4 Date Time
Ion Chromatography Batch 1756893	NON	L	Sample	Quai	<u> </u>	Cints	Ki D / 6	KEC /0	Kange Amst	Date Time
Nitrate-N	2500				2480	ug/L		99.4	(80%-120%) LXA2	2 04/19/18 03:34
Nitrite-N	2500				2530	ug/L		101	(80%-120%)	
Sulfate	10000				10200	ug/L		102	(80%-120%)	
QC1204011858 MB Chloride				U	67.0	ug/L				04/19/18 03:05
Fluoride				U	33.0	ug/L				
Nitrate-N				U	33.0	ug/L				
Nitrite-N				U	33.0	ug/L				
Sulfate				U	133	ug/L				
QC1204011861 448316001 PS Chloride	5.00	D	1.67	D	6.59	mg/L		98.4	(75%-125%)	04/19/18 18:22
Fluoride	2.50	В	0.131		2.69	mg/L		102	(75%-125%)	04/19/18 05:04
Nitrate-N	2.50	D	2.99	D	5.79	mg/L		112	(75%-125%)	04/19/18 10:12
Nitrite-N	2.50	U	0.00		2.46	mg/L		98.3	(75%-125%)	04/19/18 05:04
Sulfate	10.0	D	9.63	D	20.1	mg/L		105	(75%-125%)	04/19/18 18:22
Titration and Ion Analysis Batch 1757257 ———										
QC1204012751 447585014 DUP Alkalinity, Total as CaCO3			101000		100000	ug/L	1.19		(0%-20%) RXB5	5 04/21/18 12:56

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QC Summary

448316 Page 4 of 4 Parmname **NOM** Sample Qual QC Units RPD% REC% Range Anlst Date Time Titration and Ion Analysis 1757257 Batch QC1204012750 LCS 108000 Alkalinity, Total as CaCO3 100000 ug/L 108 (80%-120%) RXB5 04/21/18 12:43

Notes:

Workorder:

The Qualifiers in this report are defined as follows:

- Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- Result greater than quantifiable range or greater than upper limit of the analysis range >
- В The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- Ν Spike Sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable. ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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Radiological Analysis



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Radiochemistry Technical Case Narrative CH2MHill Plateau Remediation Company (CPRC) SDG #: GEL448316 Work Order #: 448316

<u>Product:</u> I129LL_SEP_LEPS_GS: COMMON (low level) <u>Analytical Method:</u> DOE EML HASL-300,I-01 Modified

Analytical Procedure: GL-RAD-A-006 REV# 21

Analytical Batch: 1755934

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
448316027	B3HTW4
1204009337	Method Blank (MB)
1204009338	447943002(B3HT13) Sample Duplicate (DUP)
1204009339	447943002(B3HT13) Matrix Spike (MS)
1204009340	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: SRISO_SEP_PRECIP_GPC: COMMON Analytical Method: SRISO_SEP_PRECIP_GPC Analytical Procedure: GL-RAD-A-004 REV# 19

Analytical Batch: 1758710

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
448316017	B3HTP1
1204016114	Method Blank (MB)
1204016115	447719003(NonSDG) Sample Duplicate (DUP)
1204016116	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: TRITIUM_DIST_LSC: COMMON Analytical Method: TRITIUM_DIST_LSC Analytical Procedure: GL-RAD-A-002 REV# 22

Analytical Batch: 1758611

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
448316028	B3HWN5
1204015853	Method Blank (MB)
1204015854	448639029(NonSDG) Sample Duplicate (DUP)
1204015855	448639029(NonSDG) Matrix Spike (MS)
1204015856	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments

The matrix spike, 1204015855 (Non SDG 448639029MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Qualifier Definition Report for

CPRC001 CH2MHill Plateau Remediation Company Client SDG: GEL448316 GEL Work Order: 448316

The Qualifiers in this report are defined as follows:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Name: Kate Gellatly

Date: 11 MAY 2018 Title: Analyst I

Sample Data Summary

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Report Date: May 1 2018 ()

Rad Certificate of Analysis

Sample Summary

SDG Number: GEL448316 Lab Sample ID: 448316017 Client: CPRC001
Date Collected: 04/17/2018 08:18

Project: Matrix: CPRC0S18004 WATER

"As Received"

Date Received: 04/18/2018 08:40

Client ID: B3HTP1

Batch ID: 1758710 Run Date: 04/28/2018 0

Run Date: 04/28/2018 09:34 Data File: S1758710.xls Prep Batch: 1758710 Method: SRISO_SEP_PRECIP_GPC
Analyst: KSD1

Prep Basis: SOP Ref: Instrument:

GL-RAD-A-004 PIC7B 60 min

Aliquot: 300 mL Count Time: Prep Method: EPA 905.0 Modified/DOE RP5

Prep Date: 04/26/2018 09:12

CAS No.	Parmname	Qual	Re	esult	Units	Uncert	TPU	MDC	RDL	
10098-97-2	Strontium-90	U	0	.692	pCi/L	+/-0.697	0.705	1.15	2.00	
Surrogate/Tracer recovery			Result	Nominal	Units	Recovery%	Acceptable	Limits		
Strontium Carrier			4.50	4.30	mg	105	(40%-110	0%)		

Comments

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The MDC is a sample specific MDC.

Rad

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Certificate of Analysis Sample Summary

SDG Number: **GEL448316** 448316027 Lab Sample ID:

Client: CPRC001 04/12/2018 10:40

Nominal

Project: Matrix: CPRC0S18004 WATER

Date Collected: Date Received:

04/18/2018 08:40

Prep Basis:

"As Received"

Client ID: Batch ID: **Run Date:** B3HTW4 1755934

Method: **Analyst:** DOE EML HASL-300,I-01 Mo SOP Ref: BSW1

Instrument:

GL-RAD-A-006 XRAY6

Data File: Prep Batch:

CAS No.

04/23/2018 09:12 I448316027.CNF;1

Parmname

Aliquot:

1.2 L **Count Time:**

1755934

120 min

Prep Date:

04/20/2018 10:25

DOE EML HASL-300,I-01 M **Prep Method:**

> MDC RDL

15046-84-1 Iodine-129 Qual Result 3.58

Units Uncert pCi/L +/-1.20 TPU 0.707 1.25

1.00

Surrogate/Tracer recovery

Result

Units Recovery% **Acceptable Limits**

Comments:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The MDC is a sample specific MDC.

Rad

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Certificate of Analysis Sample Summary

SDG Number: **GEL448316** 448316028 Lab Sample ID:

CPRC001 Client: 04/17/2018 09:32 **Date Collected:**

Project: Matrix: CPRC0S18004

WATER

Client ID:

B3HWN5

Batch ID: 1758611 **Run Date:** 04/26/2018 22:27 Data File: T1758611.xls

Method: **Analyst:**

Date Received:

TRITIUM_DIST_LSC MXH8

"As Received" Prep Basis: SOP Ref: GL-RAD-A-002 **Instrument:**

LSCBLUE 50 min

Prep Batch:

1758611

Aliquot: **Prep Method:** $50 \, mL$ EPA 906.0 Modified

04/18/2018 08:40

Count Time:

ate:	04/26/2018 08:24

rep Date:	04/26/2018 08:24

CAS No.	Parmname	Qual	Result	Units	Uncert	TPU	MDC	RDL
10028-17-8	Tritium		1270	pCi/L	+/-222	331	292	400
Surrogate/Tracer i	recovery	F	Result Nominal	Units	Recovery%	Acceptable	Limits	

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The MDC is a sample specific MDC.



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Report Date: May 11, 2018

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May 15, 2018

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QC Summary

Client: CH2MHill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600 Richland, Washington

99352

Contact: Mr. Scot Fitzgerald

Workorder: 448316

Parmname		NOM	Sample	Qual	QC	Units	QC	Criteria	Range	Analyst	Date Time
Rad Gamma Spec											
Batch 175	55934										
QC1204009337	MB										
Iodine-129				U	-0.0707	pCi/L				BSW1	04/23/1810:5
		Uncert:			+/-0.367						
		TPU:			+/-0.369						
QC1204009338	447943002		0.00			Q1.7					0.1/20/10/1
Iodine-129		X			0.353	pCi/L		• •	(0.1)		04/23/1811:0
		Uncert:	+/-0.824		+/-0.379		RPD:	29	(0% - 100%)	
0.01001000000	4.450.40000	TPU:	+/-0.830)	+/-0.412		RER:	1.36	(0-2)		
QC1204009339	447943002		0.00	7	27.0	C:/I	DEC.	06	(750/ 1250/		04/22/1011.1
Iodine-129		37.5 X			37.2	pC1/L	REC:	96	(75%-125%))	04/23/1811:1
		Uncert:	+/-0.824		+/-3.26						
0.01204000240	1.00	TPU:	+/-0.830)	+/-4.94						
QC1204009340 Iodine-129	LCS	37.5			37.8	nCi/I	REC:	101	(80%-120%	`	04/23/1811:1
10dine-129						pCI/L	KEC.	101	(80%-120%)	,	04/23/1011.1
		Uncert: TPU:			+/-3.99 +/-5.49						
D. L.C. El.		IPU:			+/-3.49						
Rad Gas Flow Batch 175	58710										
Datcii 17.	38/10										
QC1204016114	MB										
Strontium-90				U	-0.281	pCi/L				KSD1	04/28/1809:3
		Uncert:			+/-0.769						
		TPU:			+/-0.769						
**Strontium Carrier		4.30			3.70	mg	REC:	86	(40%-110%))	
QC1204016115	447719003										
Strontium-90		U			-0.0654	pCi/L					04/28/1809:3
		Uncert:	+/-0.700		+/-0.475		RPD:	0	N/A		
		TPU:	+/-0.700		+/-0.475		RER:	0.238	(0-2)		
**Strontium Carrier		4.30	4.00)	4.50	mg	REC:	105	(40%-110%))	
QC1204016116	LCS										
Strontium-90		78.2			66.9	pCi/L	REC:	86	(80%-120%))	04/28/1809:3
		Uncert:			+/-3.54						
		TPU:			+/-11.6						
**Strontium Carrier		4.30			4.30	mg	REC:	100	(40%-110%))	
Rad Liquid Scintilla Batch 175	ition 58611										
QC1204015853	MB										
Tritium				U	81.8	pCi/L				MXH8	04/27/1801:0
		Uncert:			+/-162	•					
		TPU:			+/-163						
QC1204015854	448639029										
Tritium			2040)	2170	pCi/L					04/27/1801:5
		Uncert:	+/-242		+/-254	-	RPD:	6	(0%-20%)		
		TPU:	+/-463		+/-490		RER:	0.361	(0-2)		
QC1204015855	448639029										

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QC Summary

Workorder: 448316 Page 2 of 2

Parmname	NOM	Sample Qual	QC	Units	QC Criteria	Range Analyst	Date Time
Rad Liquid Scintillation Batch 1758611							
Tritium	5110	2040	6910	pCi/L	REC: 95	(75%-125%)	
	Uncert:	+/-242	+/-971				
	TPU:	+/-463	+/-1650				
QC1204015856 LCS							
Tritium	2550		2040	pCi/L	REC: 80	(80%-120%)	04/27/1803:05
	Uncert:		+/-406				
	TPU:		+/-566				

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- Duplicate analysis not within control limits
- + Correlation coefficient for Method of Standard Additions (MSA) is < 0.995
- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- B The analyte was detected in the associated method blank >/= MDC or >5% sample activity.
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E Reported value is estimated due to interferences. See comment in narrative.
- M Duplicate precision not met.
- N Spike Sample recovery is outside control limits.
- S Reported value determined by the Method of Standard Additions (MSA)
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- UX Gamma Spectroscopy--Uncertain identification
- W Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable. ** Indicates analyte is a surrogate compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/-the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.